04 20 00 • UNIT MASONRY

SECTION INCLUDES

Brick Veneer
Brick
CMU Cavity Walls
Flashing

Filed Sub Bid

M.G.L. c.149 §44F

Masonry is a stipulated filed sub-bid category under M.G.L. Chapter 149, §44F. If the cumulative estimated value of the work in this section exceeds $20,000 and the projects total cost is over $100,000, it triggers the filed sub-bid requirement.

RELATED SECTIONS

05 55 00 Ornamental and Miscellaneous Iron
07 11 00 Waterproofing & Dampproofing
07 90 00 Sealant
08 10 00 Doors and Frames
08 60 00 Windows
22 00 00 Plumbing
26 00 00 Electrical
28 00 00 Electronic Safety and Security

BRICK VENEER, BRICK, AND CMU CAVITY WALLS

MATERIALS

Face brick: ASTM C216; Grade SW

Larger "jumbo" brick sizes (4x8, 4x12) are less expensive and should be considered if appropriate given the scale and context of the project, and whenever the standard modular size is not required to match existing conditions.

Panel bricks (8x8 or 12x12 inches) are generally not acceptable because they are difficult to install and tend to leak. Concrete masonry units are not recommended as an exterior wall finish. Split face CMU products should be avoided.

Concrete Masonry Units (CMUs): ASTM C270, Grade N. Where fire-rated walls are required provide units which conform to Underwriters Laboratories (UL) for hourly requirements indicated.

Mortar should be ASTM C270, Type N for Masonry Veneer, Type S for load bearing walls and partitions, Type M for below grade masonry work. Site mixed; proprietary masonry cements are not acceptable. Component materials must meet the following standards:

- ❑ Portland cement: ASTM C150
- ❑ Hydrated Lime: ASTM C207, Type S
- ❑ Sand: ASTM C144

BRICK VENEER, BRICK, AND CMU CAVITY WALLS, CON'T.

No mortar additives other than color or waterproofing are acceptable. Re-pointing mortar should be pre-hydrated and of low cement content.

Flashing should be through-wall copper fabric or copper with asphalt coating; PVC through-wall flashing is not acceptable because it does not bond well.

Step flashing for chimneys and similar locations should be copper or zinc coated copper.

Cap flashing should be copper or zinc coated copper.

Aluminum is acceptable only when used as counter flashing and not in contact with mortar.

Use a mortar net product on flashing repairs in cavities to prevent mortar droppings from blocking weep holes. In new construction, it is recommended to use mortar net for the full height and area of the cavity.

Coordinate specification of anchors with structural, waterproofing, and insulation requirements.

Ties and screws must be hot dipped galvanized or stainless steel.

Corrugated brick ties are not acceptable; use two-piece anchors that respond to directional movement and resist corrosion.

Provide relieving angles per structural engineer's recommendations. Joints below relieving angles must be detailed to allow for movement (see illustration); angles must be hot-dipped galvanized. Install plastic bearing strips under lintel at each jamb where a control joint occurs.

It is recommended that brick veneer on stud back-up be used with glass-mat gypsum sheathing and membrane such as W.R. Grace Perma-Barrier.

For one and two family construction, plywood or glass-mat gypsum sheathing with membrane such as W.R. Grace Perma-Barrier are acceptable.

DESIGN

Refer to the Brick Institute for design recommendations.

Seal brick cavity at the ends and at penetrations. Brick cavity must be closed at corners to prevent wind washing.

Provide a minimum cavity of 1-1/2 inches.

Use membrane such as W.R. Grace Perma-Barrier over glass-mat gypsum sheathing and under rigid insulation.

Weeps should generally be open head joints.

Spacing of weeps depends on the size of bricks used, with 32" o.c. being the maximum.

It is recommended that windows be placed near the plane of the exterior wall with minimal return at heads, jambs and sills.

Detail flashing at ends of cavity to prevent water from running off of the ends of the flashing at doors, windows and similar conditions.

Turn up flashing 8 to 10 inches inside the cavity.

Damp proof the cavity face of concrete masonry unit walls.

Investigate existing conditions and indicate the extent of masonry repair, replacement, and re-pointing at existing brick work. As part of investigation, check walls for vertical plumb variations, and horizontal variations. Also check existing mortar if re-pointing is contemplated.

Coordinate demolition and architectural drawings with the specifications. .

Provide expansion joints to accommodate thermal expansion, per Brick Institute recommendations for spacing and locations. Care should be taken to locate joints appropriate for the building context and design. Use remolded compressible elastic fillers (not fiber board), sealed with permanently elastic sealant,

EXECUTION

Workmanship must follow recommendations of the Brick Institute, including cold weather requirements and on-site mortar batching.

Protect walls and openings during and after completion of masonry work.

The Contractor must prepare for inspection a large sample panel with a window which includes: weeps, mortar-net, ties, tooled joints, flashing and caulking, angle lintels, and studs with sheathing, as well as **indicate the method of keeping the cavity clean**. This sample should not be part of the project work.

Be sure there is a process in place to oversee work to insure that cavity is kept clean.

IMPORTANT!!

Lintels must be adjusted horizontally and vertically when structurally tied to framing and must be wide enough not to restrict the cavity.

Extend flashing beyond window and door jambs and turn up to form a pan. At lintels and relieving angles, extend flashing 1/2” beyond angle leg to form a proper drip edge.

Apply mastic to lintels and relieving angle joints extending to outside face of brick.

The bottom of the cavity must be kept clean of mortar droppings. This can be done using a rope, board or other process but be sure devices used to prevent mortar droppings are not left behind, in the cavity. When in doubt schedule investigative testing to verify.

Head joints must be tight and full.

Mortar joints should be concave and metal tooled, and a maximum of 3/8 inch. Rough finished joints tend to absorb excessive water.

Flush joints are not acceptable.

MASONRY RESTORATION AND CLEANING

Brick or stone masonry shall be cleaned with water and brushes with nonmetal bristles. Diluted detergents may be used. Repeated gentle washings are preferred to fewer washings that are abrasive or chemical laden.

Repointing: In existing masonry buildings of historic or local significance, hand mortar joint removal techniques may be necessary to avoid damage. Generally, cut down to a minimum of ½" or to solid mortar of the joints during repointing work.

Care must be taken in specifying compatible replacement mortar. Match new mortar to existing for pointing and repair and be cautious about lime content of existing mortar. Consider testing existing mortar to facilitate specifying compatible new mortar.

Pointing mortar should be pre-hydrated and of low cement content.

Protective Coatings: The resolution of water infiltration problems at above ground masonry should be accomplished by other means than masonry sealants or coatings. If circumstances demand the use of these products, a penetrating "breathable" system containing silane or siloxanes should be used rather than a film coating.